

**Precision Additive White  
Gaussian Noise Generator**



Precision White Gaussian Noise Generator

The WGN series instruments generate Additive White Gaussian Noise at levels that can be very accurately set in terms of noise power in a specified bandwidth. A ‘smart’ temperature stabilized attenuator with resolution better than 0.016dB provides extremely accurate and repeatable programming of output noise power.

The instrument offers as standard a signal combiner (10dB total signal path attenuation) with low amplitude and phase ripple to allow the user to easily inject a signal and add it to the internally generated noise. Thus different carrier/noise ratios can easily be set. An optional signal path attenuator can be used to set the signal power independently of the noise power. Once a C/N ratio is established, the WGN’s precision noise attenuator can be used to vary the noise power to set new C/N ratios without having to recalibrate.

A front panel display and intuitive keypad allows the instrument to be controlled from the front panel. The display indicates the center frequency, noise power, noise density, bandwidth, signal attenuation, signal step size and noise step size. Up to ten instrument “states” can be stored in onboard non-volatile memory and recalled at a later time, thus allowing canned tests to be simply and efficiently implemented. An IEEE 488.2 interface is also provided for remote operation.

The WGN is modular in construction. Each module is factory calibrated making drop-in field replacements simple. To solve the problem of attenuator accuracy and reliability, dBm has designed self-compensating all solid state attenuators that correct for frequency and power setting variations.

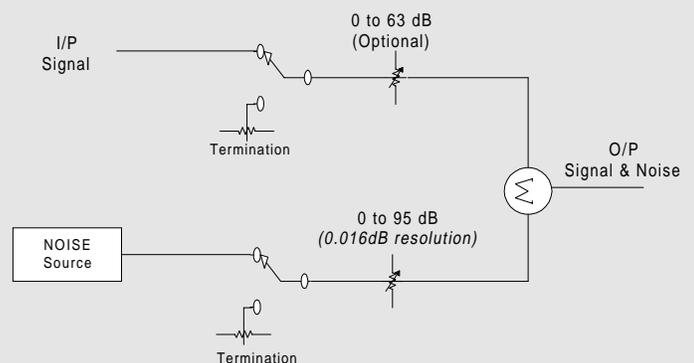
## Applications

Typical applications include

- ◆ Bit error rate (BER) and SINAD testing
- ◆ Component and subsystem linearity characterization
- ◆ Wireless link emulation

## Features

- ◆ Calibrated noise density over entire operating frequency
- ◆ Noise power/bandwidth and noise density control
- ◆ Solid state noise attenuator with 0.016 dB resolution
- ◆ Non-volatile memory for storage/recall of instrument settings
- ◆ IEEE-488.2 interface



# Specifications

Output type	Calibrated White Gaussian Noise	Primary power	
Crest factor	15 dB minimum	Voltage	90-264 VAC autoranging
Attenuation range		Frequency	48-66 Hz
Noise	0 to 95 dB	Consumption	100 VA, maximum
Signal	0 to 63 dB (optional)	Fuse	2A, slow-blow
Attenuation resolution		Ambient operating temp	0° to 35° C
Noise	0.016 dB	Dimensions	2U rack mount
Signal	1 dB		17" W x 3.5" H x 21" D
Attenuation accuracy	0.2 dB relative		
Power Spectral Density uncertainty	< 0.5 dBm/Hz		
Impedance	50 ohms		
VSWR	< 1.5 : 1		
Connectors	Type N (female)		

## Ordering Information

Model No.	Description
WGN - 1/200	1MHz to 200MHz noise band
WGN - 5/1005	5MHz to 1005MHz noise band
WGN - 800/1000	800MHz to 1000MHz noise band
WGN - 870/1750	870MHz to 1750MHz noise band
WGN - 800/2400	800MHz to 2400MHz noise band
WGN - 800/2700	800MHz to 2700MHz noise band
WGN - 100/3000	100MHz to 3000MHz noise band
WGN - 3600/4200	3600MHz to 4200MHz noise band
Options	Description
WGNoptS	Add 63dB signal attenuator
WGNoptD	Remove signal combiner

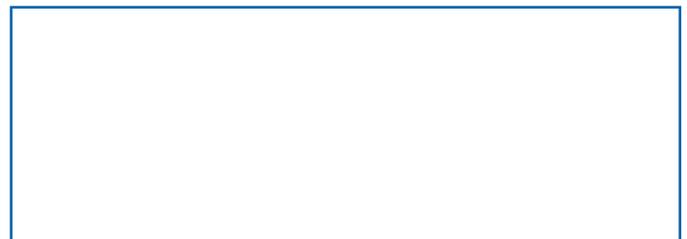
Model	Nominal full scale noise density	Passband flatness	Application
WGN - 1/200	-87 dBm/Hz	0.5 dB p-p	SATCOM
WGN - 5/1005	-94 dBm/Hz	1.0 dB p-p	CATV
WGN - 800/1000	-90 dBm/Hz	0.5 dB p-p	Cellular
WGN - 870/1750	-97 dBm/Hz	1.0 dB p-p	L band SATCOM
WGN - 800/2400	-100 dBm/Hz	2.0 dB p-p	3G/PCS
WGN - 800/2700	-100 dBm/Hz	2.0 dB p-p	3G/PCS/802.11b
WGN - 100/3000	-102 dBm/Hz	2.0 dB p-p	L&C band SATCOM
WGN - 3600/420	-105 dBm/Hz	2.0 dB p-p	SATCOM

*Other models available, please consult factory*

### Control and interface

Local interface	Front panel keypad & display
Remote interface	IEEE-488.2
Save/Recall	10 states

### Distributor



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